FlowVis®

Flow Meter
Instruction Manual

H2flow Controls, Inc.

3545 Silica Road
Unit F
Sylvania, OH 43560
USA

Tel: 888-635-0296
Fax: 419-517-9900

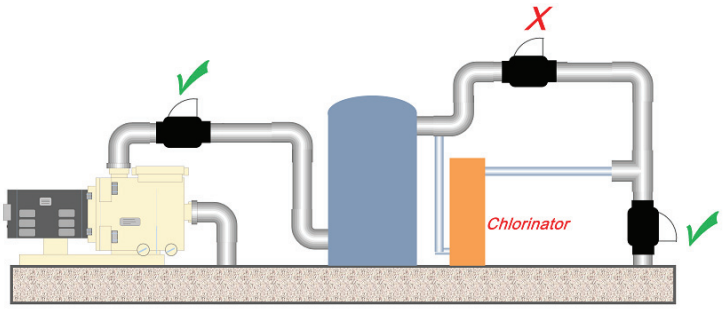
E-mail: sales@h2flow.net

www.h2flow.net

TABLE OF CONTENTS

IMPORTANT - PLEASE READ THE FOLLOWING INSTRUCTIONS BEFORE INSTALLING FLOWVIS®

IMPORTANT DISCLAIMER REGARDING CHLORINE GASES: *FlowVis® is renowned for its ability to have virtually no installation limitations. However, some low grade chlorinators and other chemical feeder systems may not prohibit chemical introduction into the system when the pool's filtration system is shut down. In these circumstances, chlorine gas will develop and will normally rise to the highest point possible in the filtration system. FlowVis® should never be installed at this location as damage will quickly occur to its internal components. H2flow will not be responsible for replacing a FlowVis® unit if it is apparent that the damage has occurred due to a high concentration of acidic compounds or other concentrated chemical mixtures that are acidic.*



1.0 DESCRIPTION

FlowVis® is a revolutionary Patent Pending product that converts a standard Check Valve into a Flow Meter and Check Valve.
The product is currently available in two formats:

a) Retrofit to install to an existing Jandy® (7305) 2" by 21/2" Check Valve body - FV-J.

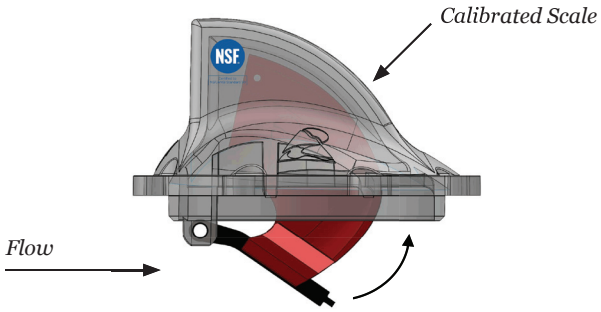
b) A complete Check Valve body assembled with FlowVis® - FV-C.

c) A complete Check Valve body assembled with FlowVis® and a safety flapper, as described in section 6 of this manual.

The Retrofit kit comprises a fully assembled FlowVis® lid, calibrated spring, pin, indicator arm, 'O'-ring and calibrated scale. Installation simply requires the removal of the eight screws securing the existing lid, installing the new 'O'-ring and securing the FlowVis® with the original eight screws.

2.0 CONCEPT

As flow increases, the check valve flapper extends towards its fully open position. The angular position of the flapper is determined by the flow through the valve body. A calibrated scale on the valve lid provides an accurate reading of flow.

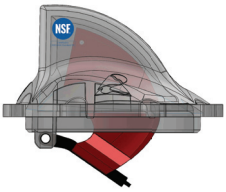


3.0 NSF 50

FlowVis® model FV-C has been tested and certified as a Flow Meter to NSF 50.

4.0 NSF 50 Mark

Models certified to NSF 50 will comprise the Mark as shown in the image to the right.



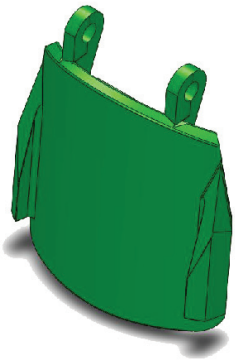
5.0 APPLICATIONS

FlowVis® is specifically designed for use in fresh water applications (i.e., swimming pools, spas, fountains, water features, etc). It is not suitable for applications that are contaminated with debris of such a size that it would prevent the check valve flapper from fully seating against the valve body.

6.0 WARNINGS & SAFETY

Check Valves should always be installed in accordance with the original manufacturer's instructions. When purchased as a complete Check Valve & Flow Meter combination, a copy of these instructions will be included with the FlowVis® packaging. If a FlowVis® retrofit kit has been purchased, it is the installer's responsibility to ensure that the Check Valve has been installed correctly and does not violate any local or federal codes relating to Check Valves.

The Virginia Graeme Baker Pool & Spa Act requires that all public swimming pools & spas that have a single main drain or multiple drains that are 3 feet or less (center to center) from each other, be fitted with a backup anti-entrapment system. Such systems include, but are not limited to, SVRS and Automatic Pump Shut Off systems. Special consideration must be made when installing a FlowVis® to such applications. Several of these systems do not allow the use of Check Valves. It is the responsibility of the installer to make sure that the requirements of the specific backup system in use are maintained.



An optional non-sealing flapper is available for these installations.

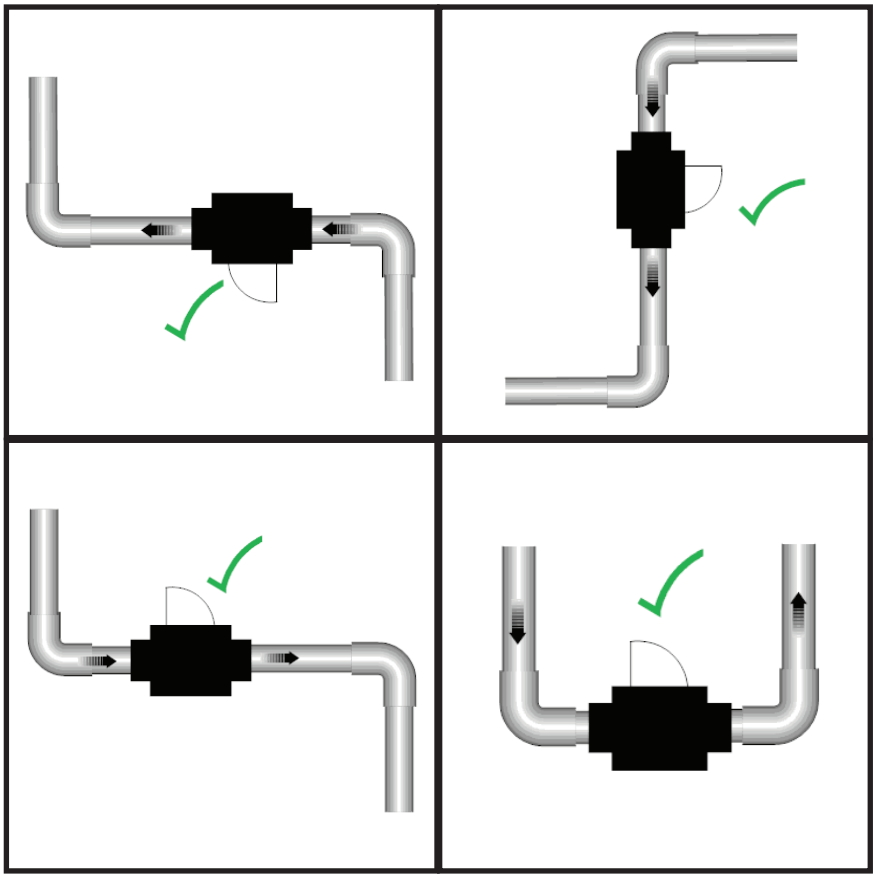
7.0 MODELS

FlowVis® is available in two different models:

Model #	Description
FVJ-R	Retrofit kit for existing Jandy® 7305 Check Valve
FV-C	Fully-assembled FlowVis®
FV-C-S	Fully assembled FlowVis® with safety flapper

8.0 INSTALLATION

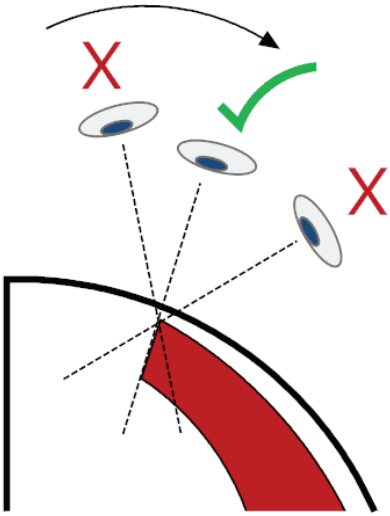
Installation of the FlowVis® should be in accordance with the following instructions. Normal plumbing procedures such as cleaning, priming and gluing of fixtures should be followed in order to avoid leaks.
Unlike other flow meters, FlowVis® is not effected by flow stream disturbances caused by its proximity to pumps, elbows, tees, valves etc. FlowVis® does not require specific straight pipe lengths before or after its point of installation and can be installed close to, or even adjacent to other plumbing fittings. FlowVis® can be installed either horizontally or vertically.



NOTE: *When selecting a physical location to install FlowVis®, be sure to allow accessibility to read the scale on the lid.*

9.0 OPERATION

The FlowVis® is factory-calibrated to be extremely accurate across its full operating range. Any 'inaccuracy' is related to the angle in which the scale is read. To avoid so-called 'parallax error', it is important to position your eye so that you are looking squarely at the tip of the indicator arm. To achieve this, simply move your head so that you just lose sight of the vertical leading edge of the red arm.



NOTE: *Slowly move your head in this direction to the point where the leading edge of the indicating arm is not visible.*

10.0 MAINTENANCE

Although FlowVis® is designed to be maintenance-free, periodic checks should be made to the following:

Item	Check for	Remedy
'O' ring seal	Check for leaks	Replace 'O' ring
Valve Body	Check for cracks or damage	Replace entire FlowVis®
Lid	Check for cracks or damage	Replace entire FlowVis®
Indicator Arm	Check to see if sticking due to build up of debris	Remove lid and flush out debris
Lid	Air bubbles in lid	Check plumbing system for air leak

11.0 SPECIFICATIONS

Materials used:

Item	Material / Comments
Valve Cover Screws	Stainless Steel
Valve Body	CPVC Plastic, Chlorine, Acid resistant
Valve Lid	Poly Carbonate (PC), Chlorine, Ozone resistant
Calibrated Spring	Stainless Steel
Pivot Pin	Stainless Steel
'O' Ring	Silicone-Lubricated Elastomer

Operation:

Function	Model(s)	Comments	NSF 50 Certified
Maximum Working Pressure	FV-C	50 psi	✓
Design Pressure	FV-C	>400 psi	✓
Head Loss when installed to 2" pipe	FV-C	0.77 psi at 20 gpm; 2.23 at 110 gpm	✓
Head Loss when installed to 2.5" pipe	FV-C	0.71 psi at 21.3 gpm; 2.37 psi at 112.6 gpm	✓
Accuracy when installed to 2.5" straight pipe*	FV-C	Range: 20-110 gpm, average accuracy: 2.28%	✓
Accuracy when installed to 2.5" in between elbows*	FV-C	Range: 20-110 gpm, average accuracy: 1.42%	✓
Minimum operating ambient temperature	All	32°F (0°C)	
Maximum operating ambient temperature	All	140°F (60°C)	
Periodic Calibration	All	None required	
Design Life	All	Greater than 5 years	

** Accuracy results are on average deviation from the actual flow as determined by a NIST calibrated flow meter in the range of 20-110 gpm, and when installed in horizontal, vertical up and vertical down orientations.*

12.0 WARRANTY

IMPORTANT, please read and keep this document on record.
1. Definition: H2flow Controls Inc. warrants that the products that it manufactures and sells will be free from defects in material and workmanship for a period of 12 months from the date of shipment.

Should the product prove defective during the warranty period, H2flow Controls Inc, at its discretion, either will repair the defective product or replace it with an equivalent product in exchange for the defective unit without charge for parts, labor, carriage and insurance.

2. Eligibility This warranty extends to the original purchaser only or to the end-user client of an H2flow Controls Inc authorized affiliate.

3. How to obtain service
To obtain service under the terms of this warranty, the customer is required to notify H2flow Controls Inc. before the expiration of the warranty period and to return the item in accordance with H2flow Controls Inc's product return policy. Any product returned for warranty repair must be accompanied by a full fault report specifying the symptoms and the conditions under which the fault occurs. Should H2flow Controls Inc incur additional cost as a result of a failure to complete the appropriate paperwork, an administrative charge may be levied.

4. Exclusions
This warranty shall not apply to any defect, failure or damage caused by improper use or improper or inadequate care. H2flow Controls Inc. shall not be obligated to provide service under this warranty if:
a) damage has been caused by a failure to make a full and proper inspection of the product (as described by the documentation enclosed with the product at the time of shipment) on initial receipt of the product following shipment;
b) damage has been caused by the attempts of individuals, other than H2flow Controls Inc staff to repair or service the product;
c) damage has been caused by the improper use of the product, including but not limited to, the installation of a FlowVis® unit using a chlorination system as described on page 2 of this manual.

5. Charges
Under cover of this warranty, H2flow Controls Inc will pay the carriage and insurance charges for the shipment of defective product back to H2flow Controls Inc and for its return to the client's original site of dispatch except when:
a) H2flow Controls Inc's product return policy has not been followed.
b) product failure is caused by any of the exclusions described at paragraph 4 above, when the customer will be liable for the full cost of the repair (parts and labor) plus all carriage and insurance costs to and from H2flow Controls Inc's premises.
c) the product is damaged in transit and a contributory cause is inadequate packaging. It is the customer's responsibility to ensure that the packaging used to return equipment to H2flow Controls Inc is the same, or has equivalent protective qualities, to that used to ship the product to the customer in the first instance. Any damage resulting from the use of inadequate packaging will nullify H2flow Controls Inc's obligations under this warranty. Should the customer's product be damaged in transit following a repair at H2flow Controls Inc's site, a full photographic record of the damage must be obtained (packaging and the product) to support any claim for recompense. Failure to present this evidence may limit H2flow Controls Inc's obligations under this warranty.

THIS WARRANTY IS GIVEN BY H2FLOW CONTROLS INC IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY, NON INFRINGEMENT OR FITNESS FOR A PARTICULAR PURPOSE. H2FLOW CONTROLS INC SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES. WE SPECIFICALLY DISCLAIM ANY AND ALL WARRANTIES TO CUSTOMERS OF THE CUSTOMER. THE CUSTOMER'S SOLE REMEDY FOR ANY BREACH OF WARRANTY IS THE REPAIR OR REPLACEMENT, AT H2FLOW CONTROLS INC'S DISCRETION, OF THE FAILED PRODUCT.

Sales Telephone hotline: (+1) 888 635 0296
Support Telephone hotline: (+1) 419 356 5374

H2flow Controls Inc.
3545 Silica Road
Unit F
Sylvania, OH 43560
United Sates of America
Fax: (+1) 419 517 9900

sales@h2flow.net